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Modeling Inclusionary Zoning's Impact on Housing Production in Los Angeles: Tradeoffs and Policy Implications

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Executive Summary

Recent California reforms have increased pressure on cities to produce more below market-rate (BMR) homes, and inclusionary zoning (IZ) is viewed as one potential strategy to achieve this goal. IZ requires or incentivizes multifamily home builders to rent some units to lower-income households at below-market prices. But while IZ has been shown to produce BMR housing, it is also sometimes associated with reduced overall housing production and increased rents and/or house prices. Evaluating IZ through the lens of production tradeoffs is important to ensure that policy makers' decisions improve housing affordability—or at least generate more benefits than costs.

In this report I use the City of Los Angeles' Transit Oriented Communities (TOC) program parameters with the Terner Housing Policy Simulator—developed for the city—to estimate potential impacts of different IZ requirements on housing production and the supply of below-market units. TOC is an incentive-based, voluntary program regarded as a model for successful IZ. While the modeled scenarios do not represent actual production numbers, they illustrate how adjusting IZ requirements can lead to sharply different outcomes for affordability.

The analysis shows:

- Changing the IZ level entails significant tradeoffs between BMR and market-rate production. As the IZ requirement rises, there are diminishing returns to BMR production and accelerating losses to overall housing production. Beyond a certain level, higher IZ requirements produce less BMR and less market-rate housing.
- BMR units produced by for-profit developers represent a large private subsidy of affordable housing. For example, with a 16 percent IZ requirement, the Simulator model yields an estimated 41,700 extremely low-income units over 10 years. These units have an annual value of approximately $1.4 billion in year 10.
- However, I also find that even small increases in rent growth in the unrestricted rental market would be enough to negate the value of private IZ subsidies. For example, compared to a no-IZ scenario, additional rent growth of just 0.8 percent per year in the 16 percent scenario would negate the value of private subsidies from IZ.

The fact that poorly calibrated IZ policies could lead to reduced housing production and higher rents and housing prices—or both—should prompt caution about increasing IZ requirements to meet BMR production targets. The voluntary and incentive-based nature of the TOC program minimizes some downside risks of IZ. Yet even well-designed IZ policies have limits, and producing BMR units through IZ may have more costs than benefits. Instead, policymakers should generally reserve the use of land use reforms for increasing overall housing production to improve affordability and choice in the wider housing market. They should use other tools, including increased public subsidies, to produce BMR homes and assist lower-income households. Public subsidies will be more cost-effective in this context.

Introduction

Inclusionary zoning (IZ) requires or incentivizes homebuilders to rent some units in their new multifamily construction projects to lower-income households at below-market prices. Many view IZ as an appealing strategy for producing affordable (below market-price) housing without the use of scarce public subsidy dollars, and hundreds of U.S. cities have adopted IZ policies.[1]

The strategy's appeal may be particularly strong in California, where cities are increasingly looking for tools to increase affordable housing production following the passage of Senate Bill 828 in 2018. By reforming the Regional Housing Needs Allocation (RHNA) process, this law dramatically increased the amount of housing cities must plan for in their guiding land use documents.

IZ offers cities a way to boost their affordable housing production through private, rather than public, subsidy. The City of Los Angeles is targeting 456,000 new homes from 2021 through 2029, including 185,000 units for low- and very low-income households. This is up from 82,000 total homes during the previous eight-year cycle. At current costs of $500,000 or more per subsidized unit, meeting this goal with only public funding is unlikely.

However, how IZ programs are designed, and the share of units that need to be priced at below-market rates (BMR), have significant implications not only for the production of BMR units, but potentially for overall rental market affordability as well. Researchers find that IZ can be associated with higher prices for the new market-rate units in IZ projects, and in some cases, for the wider housing market.[2,3] Policy makers—especially those in California who may feel pressured to increase IZ requirements to meet low-income RHNA goals—must weigh the benefits of generating additional BMR units with IZ against the potential cost of lower total housing production and higher prices for new and existing market-rate units.

In this paper, I use the Terner Housing Policy Simulator, developed for the City of Los Angeles, to estimate the potential impacts of different IZ requirements on housing production in LA. The Simulator, which uses parcel data, econometric modeling, housing pro formas, and MapCraft Labs' analytics and mapping software, allows researchers and policymakers to model changes to the cost, feasibility, characteristics, and likelihood of development across every parcel in the city under different zoning and policy conditions, including changes to IZ policy. I examine three potential effects of IZ:

- How does the production of BMR and market-rate units change at different levels of IZ requirements?
- What is the approximate value of private subsidies that go into IZ BMR units under different scenarios?
- How much faster would rents in the wider market need to increase to negate the value of privately subsidized BMR units?

I examine these questions through the lens of Los Angeles's Transit Oriented Communities (TOC) program. TOC is an ambitious IZ policy adopted in 2017. It is designed to expand the production of mixed-income and affordable housing near transit through IZ and development bonuses. In areas located near transit stops, TOC provides density bonuses and other incentives—including reduced parking requirements—in exchange for a certain share of affordable housing units (See Table 1). Since its inception in 2018, developers have proposed nearly 50,000 dwelling units as part of the program, one-third of all proposed new units in the city. Building permit data reveal that TOC projects supply primarily extremely low-income (ELI) housing units to meet the IZ requirement, with research showing that the required mix of ELI units under the TOC program is more financially attractive to developers.[4]

Using the TOC program and the production of ELI units as an illustrative example, I find that changing the level of IZ entails significant tradeoffs between BMR and market-rate production. The simulation shows that up to a point, higher affordability requirements do produce more BMR housing. But increasing the IZ requirement also substantially reduces overall housing production over a 10-year period, with relatively limited gains to below-market housing.

For example, increasing the IZ requirement needed for TOC development bonuses from the current 11 percent extremely low-income (ELI) level to 25 percent would increase ELI housing production by an estimated 17,700 units. It would also, however, reduce market-rate production by 108,700 units. After estimating the value of private subsidies invested in IZ BMR units under different scenarios, I also find that these subsidies would be entirely negated if reduced market-rate housing production leads to rent increases of 0.3 to 0.9 percent per year above baseline. These findings have significant implications for how IZ policies are designed, and raise broader questions about how cities like Los Angeles should plan for housing at different income levels.

This report begins with a discussion of how I used the Simulator to produce these findings, followed by sections on how changing IZ requirements affects housing production, what happens to private subsidy with different IZ scenarios, and which rent increase levels negate BMR housing's value. It concludes with policy recommendations that suggest strategies to minimize IZ's downside risk, recognize the limits of using development bonuses to produce below-market housing, and argue for caution against using land use policy as a substitute for broadly shared taxes and public subsidies.

Methodology

Evaluating the impacts of IZ on housing market outcomes is difficult, in part because IZ policies at the local level can vary in so many ways. They differ in the share of below-market units and depth of affordability required, whether the policy is mandatory or voluntary, whether development bonuses are provided and the scope and scale of the bonuses, the size under which projects are exempt from IZ requirements, the availability of alternative compliance measures such as in-lieu fees, and more. Cities that adopt IZ may also differ from other cities in ways that are difficult to measure, potentially confounding study results.

Nevertheless, it is important to understand IZ's costs and benefits, and existing research suggests that IZ can have unintended consequences. Because in effect it operates as a tax on development, IZ should reduce housing production and increase the overall price of housing in the market, all else being equal.[5] The evidence on this is mixed: researchers have found that IZ leads to reduced housing production in some jurisdictions[6] but not in others.[7] Although market conditions likely influence the size of these effects, their impacts can be meaningful. Hamilton finds that for every year a mandatory IZ is in place, there is an associated 0.81 to 1.1 percent increase in the housing price per square foot.[8] Similarly, Schuetz, et. al. find that in strong housing markets, a 1 percent increase in the age of an IZ policy is associated with a 0.014 percent increase in prices.[9]

I employ the data and analytics underlying the Terner Housing Policy Simulator to examine different IZ scenarios and their impacts using the City of Los Angeles' TOC program. The Simulator overlays a real estate pro forma—the calculations that determine whether a new building is financially feasible to build—on top of parcel-level land use and regulatory data. Users can then toggle a broad range of market and policy factors to observe how those changes might impact how much housing gets built. Those parcel-level estimates are aggregated across the city, and by adjusting dozens of inputs, can indicate the citywide impact that a suite of market or policy changes have on development potential.

Readers interested in a description of the Simulator's assumptions are encouraged to read the Terner Center report which includes a detailed methodology.[10] Here, I just provide the key assumptions and methods needed to understand the analysis in this paper.

In the Simulator, each parcel in the city is assigned an optimal development type—e.g., small multifamily or high-rise apartment building—and unit count corresponding to the project with the best set of estimated financial outcomes. Optimal development types and unit counts are based on model inputs such as maximum building heights and floor area, minimum parking requirements, construction and operating costs, annual rent appreciation, entitlement fees, and permitting and construction timelines.

The Simulator then estimates the probability that a building and associated units are built on a parcel within the next 10 years, which is estimated separately as a function of the project's financial outcomes. This includes an estimate of both the project's net present value and residual land value to understand how much a developer might be willing to spend to acquire the property for development. Both the residual land value and the net present value calculation incorporate the cost of the IZ policy being modeled. The "expected" impact of a policy is then estimated as the optimal unit count multiplied by the probability of development. For example, a parcel with an optimal dwelling unit count of 100 and a development probability of 20 percent has an expected dwelling unit count of 20. Total housing production under each model scenario is the sum of expected dwelling units.

A core assumption in the Simulator is estimating the rents of new units. I calculate the private subsidy that developers are contributing to each BMR unit by taking the difference between market rents for new multifamily housing and below-market IZ rents. To simplify private subsidy calculations, I estimate the citywide median rent for an average mid-tier apartment in 2020 using Fair Market Rents linked to each census tract in the Simulator, weighting rents by the total expected dwelling units for each tract under the 11 percent IZ simulation (existing city policy). I estimate a median Fair Market Rent of $2,130 in neighborhoods where housing production is anticipated, and with this figure I calculate a median rent for new multifamily apartments of $2,481 per month ($2,130 adjusted by a 28 percent rent premium and 9 percent multifamily rent discount).

For the simulations in this paper, I focus on Los Angeles's TOC program. Under TOC, projects receive development bonuses including additional dwelling units and floor area and reduced parking when they restrict some apartments to lower-income households (see Table 1 for a full list of by-right, "base" incentives). There are four TOC "tiers," with Tier 4 providing the largest development incentives and highest affordability requirements. TOC encourages developers to rent units at prices affordable to extremely low-income (ELI) households, those earning no more than 30 percent of area median income (AMI). To be eligible for the development bonuses, projects must allocate 8 to 11 percent of units for ELI households. While developers can choose to build a higher proportion of low- or very low-income units instead, most mixed-income TOC developers have been building ELI units, indicating a comparative advantage resulting in the highest baseline production.[11]

It is worth noting that this level of affordability in IZ programs is rare: policies in other cities generally target households up to 50 percent, 80 percent, or 120 percent of AMI (very low income, low income, and moderate income, respectively), in part due to the challenges associated with making projects financially feasible at deeper affordability levels. However, given the prevalence of developers choosing to build ELI units as part of the TOC program in Los Angeles, I adopt the ELI unit requirements as a benchmark for the simulations in this paper. The monthly rent for a new ELI unit is $503.

Higher tiers are the most geographically limited. Many more parcels are eligible for Tier 1 and 2 benefits than Tiers 3 and 4. I select Simulator settings that ensure projects are always eligible for the highest tier available based on their location. In other words, all projects in an 11 percent IZ scenario must set aside 11 percent of units for ELI households; this analysis does not capture the slightly reduced requirement for lower tiers.

Using the Simulator, I model expected housing production for 41 separate scenarios, from a 0 percent ELI inclusionary requirement, to the 11 percent TOC currently requires, all the way up to 40 percent (e.g., 0, 1, 2, 3, ... 40). For every parcel, the Simulator calculates the probable number of units that will be developed over 10 years, taking into account the project's financial feasibility based on total development costs, the anticipated rent returns from the BMR and market-rate units, and parcel zoning constraints (including the bonuses from the TOC incentive). These simulations allow me to assess how many ELI and market-rate units could be built in Los Angeles over the next 10 years for every level of IZ requirement.

In the second phase, I estimate the private subsidy from ELI units produced by for-profit developers. I subtract the rent for ELI units from the rent for new market-rate units, which can be interpreted as the forgone rent to the developer from including IZ units in their property. I then convert this difference to an annual subsidy

Table 1: "Base" Development Incentives by Location Tier, Transit Oriented Communities Program

	Tier 1 (Low)	Tier 2 (Med)	Tier 3 (High)	Tier 4 (Regional)
Affordable Housing Requirement	8 % ELI	9% ELI	10% ELI	11% ELI
	11% VL	12% VL	14% VL	15% VL
	20% Low	21% Low	23% Low	25% Low
Density	50% Increase	60% Increase	70% Increase	80% Increase
Restricted Density Zones Exception	35% Increase	35% Increase	40% Increase	45% Increase
FAR Residential	40% Increase	45% Increase	50% Increase	55% Increase
Commercial Zones	At least 2.75:1	At least 3.25:1	At least 3.75:1	At least 4.25:1
Residential Parking (allows for unbundled)	0.5 per bedroom	0.5 per bedroom	0.5 per unit	None
Ground Floor Commercial	10% Reduction	20% Reduction	30% Reduction	40% Reduction

Note: Additional incentives including increased height and setback reductions are also available but require discretionary approval.

For the full table of conditions, including exceptions, see City of Los Angeles, Transit Oriented Communities Affordable Housing Incentive Program: https://planning.lacity.gov/odocument/87b0f2c2-8422-4767-a104-b7cd323ee26f/Transit-Oriented_Communities_-_Affordable_Housing_Incentive_Program_(FAQ).pdf

figure, and multiply by the cumulative number of ELI units produced at year 10. I assume the same 4 percent rent increase as with the market rate units.[12]

Having estimated the value of private subsidies invested in ELI units (the primary benefit of IZ), I then determine the incremental rent growth in existing market-rate units that would be necessary to fully offset this benefit. An estimated 870,800 renter households in Los Angeles paid cash rent in 2019, and I assume 740,180—85 percent, or slightly fewer than the 88 percent who pay market rent in the LA metro area according to the American Housing Survey—are therefore impacted by higher rents.

I start with the median rent that households paid in 2019. I apply the Simulator model's assumed baseline 4 percent annual rent increase until year 10, yielding a median annual rent of $26,542. This is the median private market rent under baseline conditions. To calculate the median rent needed to negate the value of IZ-produced ELI housing, I apply the

4 percent rent increase and an additional incremental increase annually until year 10.[13] This second figure, the incremental rent hike, is the rate that raises aggregate costs for private market renters by an amount equal to the total private subsidy of ELI units under each IZ scenario (both in year 10).

Before turning to the findings, a few caveats are important to bear in mind. The housing production figures presented below are the result of a modeling exercise using the Terner Housing Policy Simulator, and do not represent actual production numbers. Future production in Los Angeles will depend on myriad policy, economic, political, and demographic trends and changes. The modeled scenarios are useful mainly in relationship to one another, illustrating how adjusting IZ requirements can lead to sharply different outcomes.

The analysis also has some limitations. First, the modeled scenarios assume the specified IZ requirements apply to all new multifamily buildings, but in practice some smaller projects would be exempt (e.g., the TOC program currently applies only to projects with five or more units). The potential effects of these exemptions are uncertain. On the one hand, exempt projects would not contribute to ELI housing production, reducing the private subsidy generated by the IZ policy. On the other, some small projects rendered infeasible in these scenarios would go forward, curbing the negative impact of reduced housing production. It is difficult to know which effect is larger, but neither is likely to be strong because relatively few new units in Los Angeles are in smaller buildings (e.g., under 10 units).

Second, some of the assumptions powering the Simulator may not bear out. For example, while 2010 to 2020 did see strong rental growth, rents have flattened in many markets in recent years. Assuming 4 percent year-over-year rent growth for the next 10 years may be too high. If this assumption is toggled down, the number of projected market-rate and ELI units would be lower than indicated.

Finally, the Simulator does not account for general equilibrium effects, like the shortage of construction and planning bandwidth that might arise from greatly increased housing production.

For all these reasons, readers should not interpret this analysis as identifying an "optimal" IZ requirement, or predicting the future effects of TOC. Instead, it is intended to highlight the tradeoffs inherent to IZ policy and raise these issues for policy makers and practitioners.

Impact of Changing IZ Requirements on Market-Rate and Below-Market Housing Production

The first simulation asks "how does changing IZ requirements in Los Angeles impact the production of both market-rate and ELI units?" Figure 1 shows total, market-rate, and ELI production for each scenario, from 0 to 40 percent ELI requirements. TOC development bonuses are available to all projects within the areas where TOC is available. Eliminating the IZ requirement entirely while maintaining TOC development bonuses yields a total of 398,800 housing units over 10 years, a 38 percent increase compared to the existing policy of 11 percent IZ. Notably, this is still fewer than the 456,000 units contemplated in the city's revised Housing Element, highlighting the need for multiple overlapping reforms to meet this goal.

Increasing the affordability requirement from 0 to 1 percent has a dramatic impact on market-rate housing production, which falls by approximately 71,400 units.[14] The number of market-rate units continues declining after 1 percent IZ, but less steeply. Between 1 and 16 percent, each percentage point increase in requirements is associated with a reduction of between 4,600 and 11,900 market-rate units.[15] By 17 percent, market-rate production is cut by nearly half (49 percent), and at 25 percent IZ total production is lowered by half. At these higher IZ levels, the cost of producing the ELI units (and forgone rents) make many housing developments financially infeasible, even with the density and other development incentives the TOC program provides.

As intended, ELI unit production increases alongside rising IZ requirements. At 6 percent IZ, developers would contribute 16,300 new ELI units over a 10-year period, and at 11 percent that increases to nearly 32,000 units. However, I also find that the rate of ELI unit growth slows markedly around 8 to 11 percent IZ, and continues to flatten until 25 percent, when the number of ELI units produced reaches its peak.

After this point, ELI and market-rate unit production begin to decline as a greater share of developments become financially infeasible. At 25 percent IZ, the market would produce an estimated 49,500 ELI units, increasing by only 7,800 units from the 16 percent level, suggesting diminishing returns from higher inclusionary requirements. By 40 percent IZ, total production falls to 96,200 units, including 38,500 extremely low-income units.

Figure 1. Simulator Model Outputs of 10-year Housing Production for IZ Scenarios Ranging from 0 to 40% IZ

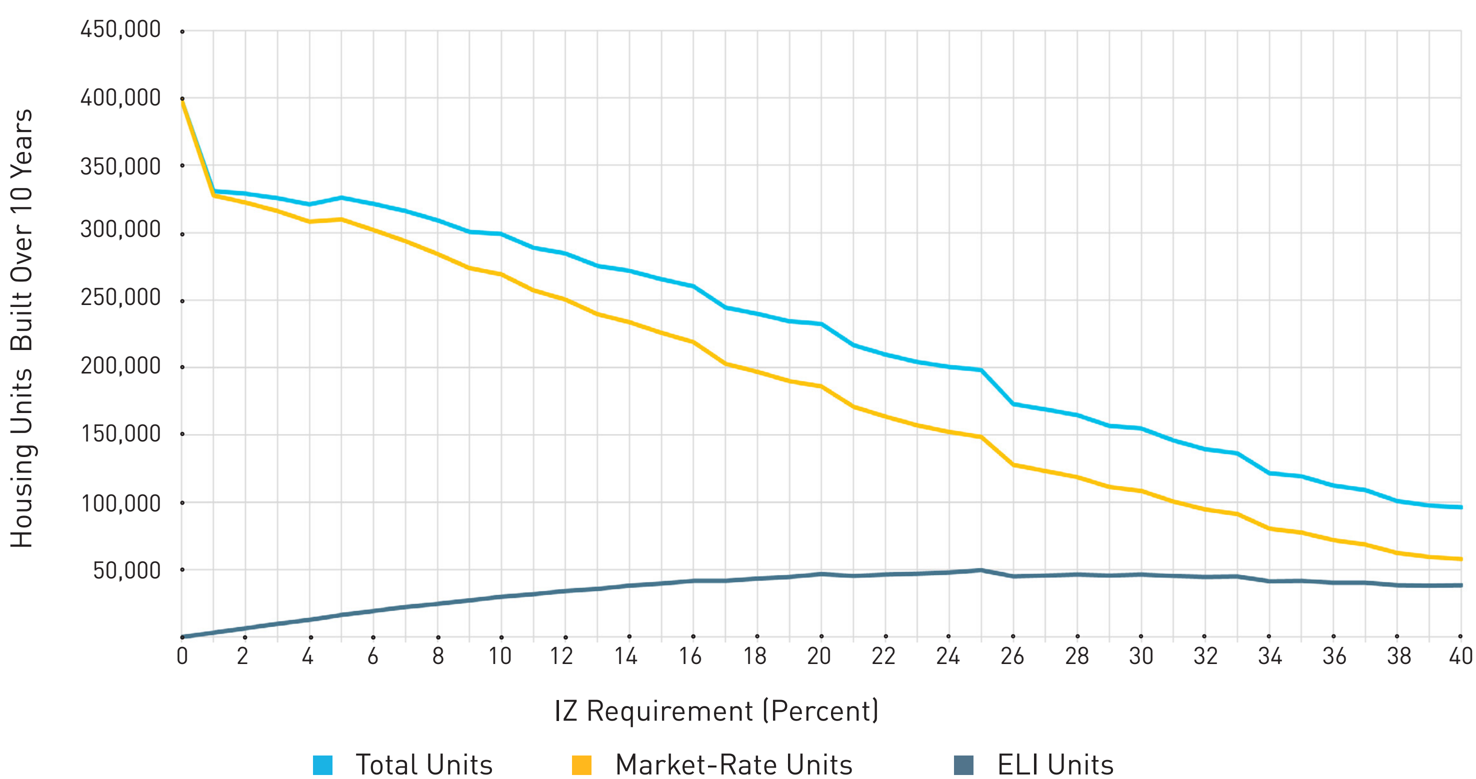

Figure 1 shows that IZ requirements entail a strong tradeoff between ELI and market-rate housing production. Even though ELI production is highest at 25 percent IZ—at 49,500 units—it comes at great cost: compared to 16 percent IZ, nearly 9 market-rate units are lost for every additional BMR unit.

Table 2 illustrates this "exchange rate" between market-rate units and ELI units in greater detail, showing the model outputs for total and ELI housing production for selected IZ scenarios. The table also shows reductions in market-rate units compared to the no-IZ scenario (i.e., the loss of total units plus the units now restricted to ELI households). The last row shows the exchange rate. For example, compared to the no-IZ scenario, an 11 percent IZ requirement reduces market-rate production by 4.5 units for every unit of ELI housing added, and at 40 percent IZ this ratio increases to 8.9. Figure 2 shows the ratio for each simulation from 1 to 40 percent IZ.

Among the selected scenarios with inclusionary requirements, 16 percent IZ yields the lowest exchange rate between market-rate units and ELI units. Nonetheless, more than four market-rate units are lost for every ELI unit gained.

The analysis above shows how housing production might increase or decrease in response to changing IZ requirements while maintaining TOC program development bonuses. These development bonuses are critical to IZ outcomes. Table 3 shows how housing production would respond to different IZ requirements without development bonuses to compensate for IZ costs.

Unsurprisingly, removing development bonuses results in less housing production at all IZ levels. The most striking result from these simulations is that a policy landscape without the TOC program and without IZ produces fewer total units than simulations that maintain TOC and have an IZ requirement of 16 percent or lower—245,300 compared to at least 260,300 units, respectively. The TOC program with a 16 percent IZ requirement produces more ELI but fewer market-rate units than the no-TOC, no-IZ scenario. TOC with an 11 percent IZ requirement yields more of both.

Two lessons from this section's findings

Table 2. Simulator Model Outputs for Housing Production Over 10 Years Under Selected IZ Scenarios with TOC Bonuses

IZ Requirement	0%	11%	16%	25%	40%
Privately-Subsidized ELI Units	0	31,800	41,700	49,500	38,500
Market-Rate Units	398,800	257,200	218,700	148,500	57,700
Total Housing Units*	398,800	289,000	260,300	198,000	96,200
Change in Market-Rate Units Relative to 0% IZ*	-	(141,600)	(180,200)	(250,300)	(341,100)
Market-Rate-to-ELI Unit Exchange Rate**	-	4.5	4.3	5.1	8.9

Notes: *May not sum to total due to rounding.

**Exchange rate is the ratio of market-rate units lost to ELI units gained relative to a 0% IZ baseline.

Figure 2. Ratio of Market-Rate Units Lost to ELI Units Gained, Relative to a 0% IZ Baseline, for Each Simulation from 1 to 40% IZ

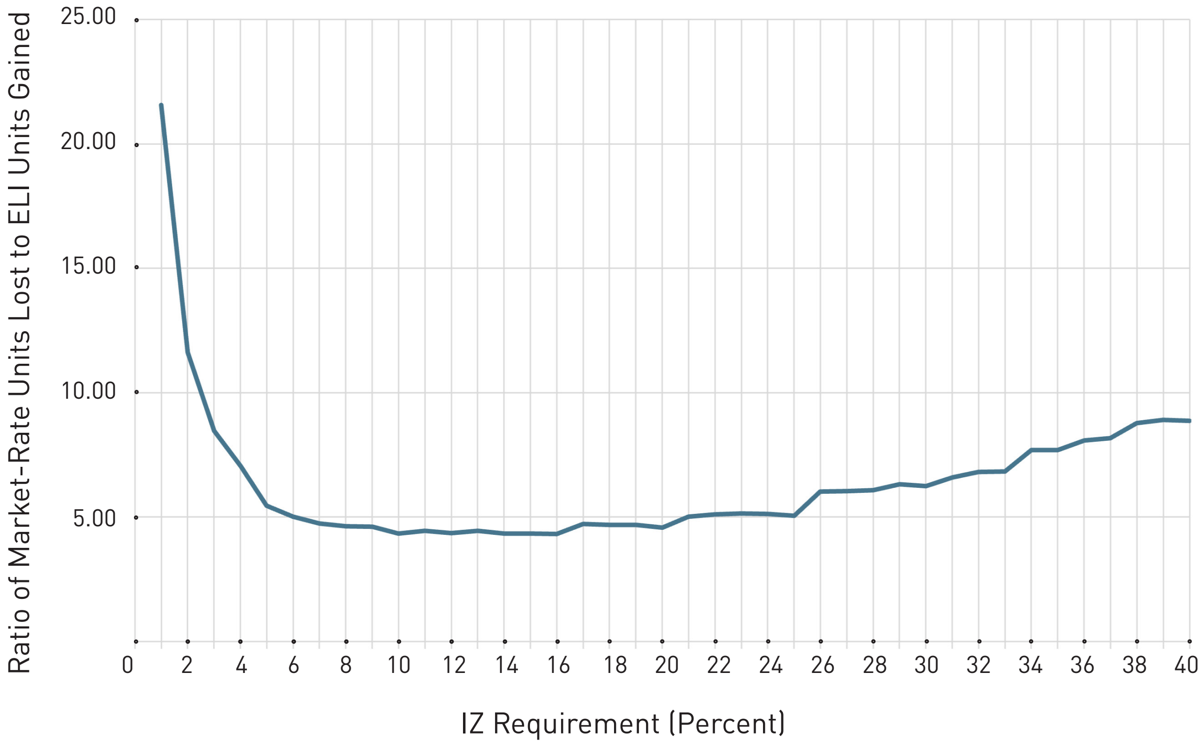

Table 3. Simulator Model Outputs for Housing Production Over 10 Years Under Selected IZ Scenarios Without TOC Bonuses

IZ Requirement	0%	11%	16%	25%	40%
Privately-Subsidized ELI Units	-	20,700	28,000	33,100	26,400
Market-Rate Units	245,300	167,800	147,200	99,300	39,500
Total Housing Units*	245,300	188,600	175,300	132,500	65,900

Notes: *May not sum to total due to rounding.

are worth highlighting. First, adopting the TOC program likely increased Los Angeles' supply of below-market homes and reduced housing scarcity overall. Second, raising the TOC program's IZ requirements to a higher level would likely produce additional BMR units, but it would also exacerbate the city's housing shortage compared to the status quo.

Estimated Private Subsidy of ELI Housing Under Different IZ Scenarios

In this section I estimate the value of private subsidies developers invest into ELI units under different IZ scenarios. These subsidies represent a cost for developers and a benefit for the public—particularly for the extremely low-income households who live in the units. Estimating these subsidies' value is important for understanding how the benefits of IZ policies compare to the costs of reduced housing production and potentially higher rents overall.

Because the Simulator model output is 10-year housing production, I report the annual subsidy for all ELI units in year 10. I calculate per-unit subsidies by escalating new market-rate and ELI monthly rents by 4 percent annually for 9 years, converting to annual rent, then deducting annual ELI rent from annual market rate rent in year 10. Per-unit subsidies are then multiplied by cumulative ELI unit production at year 10.

Table 4 shows the estimated total annual private subsidy by for-profit developers under four IZ scenarios. The 5 percent scenario models a rolled-back requirement compared to the current 11 percent IZ policy, 16 percent IZ has the lowest market-rate-to-BMR exchange rate (4.3), and 25 percent produces the most ELI units, and therefore the largest private subsidy.

Estimated private subsidy of ELI housing in year 10 ranges from $551 million under the 5 percent IZ policy to $1.67 billion at 25 percent. Although 25 percent IZ requires 5 times as much ELI housing per project as 5 percent, it generates only 3 times as much subsidy, reflecting diminishing returns to production as the IZ threshold increases.

There are also costs associated with producing ELI units with IZ. Lower overall production reduces the amount of construction activity in the city, negatively impacting labor income and various tax revenues. Property taxes are especially affected, with fewer new units (which are taxed at full value, in contrast to older units, which are taxed at less than market value to varying extents). Fewer residents

Table 4. Estimated Value of Private Subsidy of Extremely Low-Income Units Produced Under Different IZ Scenarios

IZ Requirement	5%	11%	16%	25%
Total Housing Units	326,100	289,000	260,300	198,000
Privately-Subsidized ELI Units	16,300	31,800	41,700	49,500
Annual Rent Discount on ELI Units (Year 10)	$33,784			
Total Value of Private Subsidy of ELI Units (Year 10)	**$551 million**	**$1.08 billion**	**$1.41 billion**	**$1.67 billion**

can live, spend money, and pay taxes in the city. On average, new market-rate units produce one-time and recurring fiscal surpluses for the city,[16] and fewer are built in higher IZ requirement scenarios.

Another potential cost is higher rents for the roughly 85 percent of tenants in housing that is neither publicly owned nor receives government subsidies other than portable housing vouchers. I discuss this cost and its relationship to the value of private subsidy of BMR units in IZ projects in the next section.

Estimated Rent Increases Needed to Negate the Value of IZ-Produced BMR Housing

One of IZ's benefits is that it creates lower-income housing without public subsidies. A drawback is that the cost of renting some units at a loss is likely passed on, at least in part, to the market-rate unit tenants in IZ projects. However, developers cannot arbitrarily raise rents simply because IZ increases their costs. They may be able to reduce some expenses through "value engineering" of building design or increase revenues by targeting a higher-income clientele, but there are limits to these approaches. And both will tend to narrow demand for new housing: if new homes are not as high quality, renters may be more likely to seek out older units; if they are too luxurious then fewer renters can afford them.

A potentially larger and broader drawback of IZ is its effect on affordability in the wider housing market. If IZ reduces housing production, dampened supply is likely to increase housing costs overall, including for renters in older market-rate units. Estimating the impact of reduced production on rents in Los Angeles is beyond the scope of this analysis, but it is possible to estimate the marginal increase in rents that would negate the private subsidy of ELI housing.

In the previous section I estimated the value of IZ-produced below market-rate housing under different policy scenarios, and here I identify the incremental rent growth rate that would raise housing costs for private-market renters by an equal amount. Table 5 shows the results of this analysis, highlighting the relatively small rent increases that, if they came to pass, would result in zero or negative net welfare—costs of IZ meeting or exceeding its benefits.[17]

Table 5. Incremental Rent Increase Needed to Raise Rents for Private Market Renters by an Amount Equal to the Value of Private Subsidy of ELI Units Under Different IZ Scenarios

IZ Requirement	5%	11%	16%	25%
Reduction in Market-Rate Units (Compared to 0% IZ Baseline)	(89,000)	(141,600)	(180,200)	(250,300)
Incremental Annual Rent Increase Needed to Negate Private Subsidy of ELI Units	0.3%	0.6%	0.8%	0.9%

Notes: Incremental rent increase is multiplicative, above 4% baseline annual increase.

The main takeaway from this exercise is that minor changes in rent can produce large additional costs for renters in the aggregate. In the 5 percent IZ scenario, only 0.3 percent faster annual rent growth—2.8 percent over 9 years—increases private market renters' aggregate costs by an estimated $550 million in year 10. This is a very small incremental rent hike, and a plausible consequence of building 89,000 fewer market-rate units over a decade. The 25 percent IZ scenario yields 63 percent reduction in market-rate housing production, yet the estimated value of IZ-produced ELI units would be fully offset by only 0.9 percent faster annual rent growth.

Discussion

Using the Terner Housing Policy Simulator to model the housing production impacts of different IZ policies in Los Angeles, I find that increasing the IZ requirement would reduce overall housing production substantially over a 10-year period, with relatively modest gains to below-market housing.

For example, increasing the IZ requirement needed to use TOC development bonuses from the current 11 percent ELI to 25 percent would increase ELI housing production by an estimated 17,700 units but reduce market-rate production by 108,700 units. An IZ requirement of 16 percent produces the largest amount of ELI housing relative to lost market-rate units, but is nonetheless quite costly, exchanging 4.3 market-rate units for every ELI unit. Beyond 25 percent, higher affordability thresholds produce less below-market and market-rate housing.

These findings have implications for policy makers considering using IZ to expand the supply of BMR units.

It is important to evaluate tradeoffs between using IZ to produce BMR units and its impacts on market-rate production.

While not a critique of the TOC program, the analysis presented in this paper should be interpreted as a warning against increasing IZ requirements. The fact that poorly calibrated IZ policies could lead to reduced housing production, higher rents and housing prices, or both, should prompt caution. Up to a point, higher IZ levels may increase BMR production, but likely at the cost of substantially lower market-rate housing production. Beyond a certain threshold, higher IZ requirements are likely to reduce market-rate and BMR housing production.

Caution is particularly warranted given the importance of housing supply for reducing overall rents[18] and creating new housing opportunities for renters at all income levels.[19] The majority of renters in Los Angeles live in the unrestricted rental market. In the Los Angeles-Long Beach metro area, only 283,000 (12 percent) of renter-occupied units are publicly owned or receive a government subsidy or other rent reductions that require income verification. Affordability in the unrestricted market is critical for the majority of renters, many of whom are low-income. If IZ reduces the supply of those units, and increases prices, these unintended consequences might outweigh the benefits of the increase in BMR units it provides.[20]

It is important to acknowledge that this analysis offers a crude comparison of costs and benefits, and does not account for the marginal utility of public or private investments. Specifically, I do not attempt to determine the extent to which a dollar of private subsidy invested in an ELI unit may be more impactful than a dollar a renter saves on the private market, nor can I distinguish between private market renters by income, wealth, race, or other characteristics. In practice, there is good reason to assign more value to assisting extremely low-income households, due in part to their greater need and higher risk of homelessness. At the same time, rates of homelessness are strongly correlated with median rents, so affordability in the wider market is still relevant to very poor households.[21]

Policy makers must consider whether a policy that may drive up rents for all tenants (and also costs for homebuyers) is the best approach for subsidizing a small share of housing. The high cost of land and construction means that providing assistance to extremely low-income households via privately subsidized development is expensive compared to alternative strategies. For example, in this analysis per-unit subsidies are nearly $24,000 in year 1, while the Housing Authority of the City of Los Angeles spent $13,800 per household on the Housing Choice voucher program in 2021.[22]

Two aspects of inclusionary zoning are critical: providing development incentives when market-rate developers include BMR units, and making program participation voluntary.

Because TOC provides development incentives, a developer who might have built 100 market-rate units prior to the program can now build a project—depending on its location—with as many as 180 total units, including 20 for extremely low-income households (or 45 for low-income households). As a comparison between Tables 2 and 3 shows, the TOC program has likely encouraged more market-rate and below-market housing—and at deeper levels of affordability for BMR units—because of its development incentives.

Voluntary participation is also important. Mandatory IZ policies without development bonuses are a worst-case approach, but even mandatory IZ with bonuses increases the risk that the policy will negatively impact market-rate production. If the IZ requirements or development bonuses are miscalibrated such that the cost of below-market units exceeds the revenues from additional market-rate units, then projects become financially infeasible. And even when IZ policies are carefully designed, they rarely take into account impacts on different neighborhoods or development types (e.g., low-rise vs. high-rise multifamily) or adapt to changing market conditions.

An advantage of voluntary IZ is that if the balance of mandates and incentives is miscalibrated, or if the market changes, then developers can elect to build without development incentives and market-rate production is not unintentionally stymied. To be clear, the purpose of a voluntary IZ policy is not to exempt developers from building below-market housing: a well-designed IZ program should have nearly 100 percent utilization, as is the case in Los Angeles. Assembly Bill 1505 (2017) requires cities to do a formal economic analysis of any IZ policy they enact. It also subjects that analysis to state review if its IZ level goes above a certain amount, which could over the long-term encourage cities to assess and recalibrate their IZ policies. However, this remains more art than science; voluntary compliance at a minimum ensures that IZ policies intended to increase below-market production do not only decrease market-rate production instead.

Density bonuses and other incentive-based housing production policies have limits, suggesting that increasing development incentives won't necessarily make higher IZ requirements feasible.

The analysis shows that even with well-designed IZ policies, the market's ability to produce BMR units has its limits and may have unintended consequences. Policymakers in Los Angeles and elsewhere may look at TOC's success and be tempted to double down with additional development bonuses and higher affordability mandates, assuming this will further increase market-rate and BMR production.

Development costs do not increase linearly with project size, however, suggesting that additional density, floor area, or height may not make more IZ units feasible. Higher-cost construction materials and methods are required as building height increases, particularly as they exceed 7 to 8 stories. At this threshold, building structures transition from primarily wood (Type III to V) to concrete or steel (Type I). The Los Angeles Department of Building and Safety estimates that, all else being equal, Type I construction is approximately 30 percent more expensive per square foot than Type III construction and 43 percent costlier than Type V.[23] Many TOC projects are already seven to eight stories. Increasing density by an additional 50 percent might allow a 12-story building where only 8 stories is permitted today, but this does not guarantee financial feasibility or the ability to accommodate a higher IZ requirement.

For example, imagine an apartment development in a Tier 3 TOC area using a 70 percent density bonus. The TOC incentives allow an 8-story, 100,000 square foot building. If construction and materials for this building are $300 per square foot (psf), the total construction and materials cost is $30 million. If allowable density and floor area increases by an additional 50 percent, the developer could build a 12-story, 150,000 square foot building. However, the increased height boosts construction costs to at least $360 psf, meaning the total cost of construction rises to $54 million. Density increased by 50 percent, but costs grew by 80 percent. In this scenario the 12-story project is less feasible than the 8-story, even without higher affordability requirements.

Higher IZ requirements have their limits even if construction costs did scale linearly with project size. In this case, imagine a parcel zoned to allow a 100-unit market-rate building. If each additional market-rate unit earns a profit of $100,000 and each ELI unit loses $400,000, then a bonus that allows 100 percent more density and requires 10 percent of units for ELI households may be feasible: the project adds 100 units at a 4 to 1 market-rate-to-BMR ratio. What if the bonus is increased to 300 percent—can the IZ requirement also be tripled? It cannot. A 300 percent bonus adds 300 units, of which at least 240 must be market-rate for the project to be feasible. In this case, the IZ requirement cannot exceed 18 percent. A 1,000 percent bonus permits only a 22 percent IZ requirement. The value capture potential of development bonuses has diminishing returns.

Broad-based land use reforms combined with increased public funding are likely to have greater benefits and fewer unintended consequences than IZ policies.

One of IZ's fundamental shortcomings is that it does not address—and likely exacerbates—the housing scarcity that drives higher rents and home prices. It improves housing affordability for a few at the risk of worsening affordability for many, and it taxes precisely the activity needed to ameliorate the housing shortage and bring down rents: development.[24] This analysis shows that increasing IZ requirements may not produce substantially more below market-rate units, and is very likely to reduce future housing production. Policy makers must identify strategies that encourage building more market-rate and below-market housing.

As noted above, Los Angeles is unlikely to resolve its housing shortage only by enlarging density bonuses and further concentrating development in already-dense neighborhoods. It must also expand the areas where low- and mid-rise multifamily development is allowed. Currently, only 28 percent of land zoned for residential uses in the City of Los Angeles and 22 percent in the region allows multifamily housing.[25] Opening up more neighborhoods to multifamily housing would lower per-unit land and construction costs and expand the number of parcels where redevelopment is feasible, increasing housing production and diversity and limiting rent growth.[26]

In isolation, broad land use reforms are unlikely to directly produce large amounts of housing affordable to low-, very low-, and extremely low-income households. However, expanding low-cost multifamily development opportunities can reduce costs for subsidized affordable housing developers and rent assistance voucher providers, thereby increasing below-market housing production indirectly.[27] IZ seeks to address the need for below-market units more directly, but it may indirectly undermine BMR production from other sources—such as the Low-Income Housing Tax Credit and Housing Choice Voucher program—by accelerating rent growth.

Different tools have different strengths, and land use policy may be best suited to improving affordability in the wider housing market, while public subsidies are best for producing below-market homes. IZ seeks to produce affordable homes by substituting land use policy in place of broadly shared taxes and public subsidies. This analysis suggests that the public may be paying either way, and that the costs of IZ are both higher and more regressive than the alternative.

ENDNOTES

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3. For example, Hamilton (2021) finds that for each year a mandatory IZ policy is in place, there is a 0.81 to 1.1 percent increase in the price per square foot of housing. Schuetz et al. (2011) similarly find that in strong housing markets, a 1 percent increase in an IZ policy's age is associated with a 0.014 percent increase in prices. Researchers have found that IZ leads to reduced housing production in some jurisdictions (see: Means, T. & Stringham, E. (2012); Schuetz, J., et al. (2011)) but not in others (Bento, A., et al. (2009); Hamilton, 2021; Mukhija, V., et al. (2010) "Can Inclusionary Zoning Be an Effective and Efficient Housing Policy? Evidence from Los Angeles and Orange Counties." Journal of Urban Affairs, 32(2), 229–252. https://doi.org/10.1111/j.1467-9906.2010.00495.x.

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10. Additional background on the Terner Center Housing Policy Simulator, including methodology: https://ternercenter.berkeley.edu/blog/policy-dashboard-los-angeles/.

11. Zhu, L. et al. (2021). "Los Angeles' Housing Crisis and Local Planning Responses: An Evaluation of Inclusionary Zoning and the Transit Oriented Communities Plan as Policy Solutions in Los Angeles," Cityscape, 23(1): 133-160. Retrieved from: https://www.huduser.gov/portal/periodicals/cityscpe/vol23num1/ch5.pdf. This may seem counterintuitive because ELI housing requires larger subsidies than low- and very low-income housing. However, developers who provide low- or very low-income units must also set aside a larger share of units for below-market households, more than offsetting the lower per-unit subsidy required of these units. For example, a 100-unit project (after bonuses) must provide 11 extremely low-income units, 15 very low-income units, or 25 low-income units to receive the most generous Tier 4 bonuses. If a new market-rate two-bedroom apartment rents for approximately $3,500 per month and similar ELI units rent for $700, providing 11 ELI units requires a monthly subsidy of $30,800 (a $2,800 discount multiplied by 11 units). Very low-income units rent for roughly $1,200, and multiplying this $2,300 discount by 15 units results in a total monthly subsidy of $34,500. The implicit subsidy for 25 low-income units is even larger.

12. In practice, ELI rents are pegged to increases in area median income. In Los Angeles County, median incomes grew by 2.95 percent per year from 2000 to 2021, 3.57 percent annually from 2010 to 2021, and 5.61 percent annually from 2017 to 2021. However, to simplify the analysis, I use the same rental adjustment as for market rentals in the Simulator.

13. For example, in the baseline 0 percent IZ scenario, if median rent is $1,000 in year 1, it would rise by 4 percent to $1,040 in year 2 (i.e., 1,000 * 1.04). In the 11 percent scenario, if the annual incremental rent increase is 0.6 percent, median rent would rise by 4.624 percent to $1,046 in year two (i.e., 1,000 * 1.04 * 1.006).

14. This initial stark decline is likely explained by IZ policies rounding up when calculating the required number of BMR units. For example, under a 1 percent IZ policy a 10-unit building would be required to provide 1 BMR unit, or 10 percent—it rounds up to 1 unit rather than down to zero. A 3-unit development would set aside 33 percent of dwellings (i.e., 1 unit) at a below-market price. Inclusionary zoning policies therefore tend to impact smaller projects more heavily than larger projects.

15. The one exception is the shift from 4 to 5 percent IZ, where both market-rate and ELI unit production increase slightly. This is likely an artifact of the model, and it demonstrates why model outputs should not be interpreted as precise estimates.

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17. Home values will also increase more rapidly under reduced-production scenarios, though gains to current homeowners from rising home values are offset by losses to future homebuyers, and estimating the balance of other costs and benefits is difficult. On the one hand, rapidly increasing home values increase government tax revenues. On the other, rising prices undermine racial and economic equity and likely increase public service demands to address homelessness and other consequences of high housing prices.

Costs and benefits of rising home values are not estimated in this brief, but the costs are disproportionately borne by renters, younger people, people of color, and lower-income and non-wealthy households.

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